

## Subsaharan Ceratopogonidae (Diptera) XIII. Two new South African genera of the Tribe Ceratopogonini

by

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Two new genera of predaceous midges of the Tribe Ceratopogonini are described from South Africa: *Ankylohelea* **gen. nov.**, with type-species *Ankylohelea montana* **sp. nov.** and *Capehelea* **gen. nov.**, with type-species *Capehelea steli* **sp. nov.**

### INTRODUCTION

Recent collections of ceratopogonid midges in South Africa by means of light traps, malaise traps and emergence traps, by a widely scattered group of interested colleagues and friends, have yielded a remarkable array of previously unknown genera in the tribe Ceratopogonini. Some of these have been reported in previous contributions of this series (De Meillon *et al.*, 1979-1986), and others are described in a revision of the genera of Ceratopogonini now in preparation by Wirth and Grogan. Two new genera are described here in order to make the names available for the revision by Wirth and Grogan, and for a manual and keys to the genera of Subsaharan Ceratopogonidae now in preparation by the present authors.

Explanation of the taxonomic characters used can be found in the general papers on Ceratopogonidae by Wirth (1952), Wirth *et al.* (1977) and Downes & Wirth (1981). The holotypes of our new species are deposited in the South African Institute for Medical Research, Johannesburg (SAIMR). Paratypes, whenever available, are deposited in the British Museum (Natural History), London (BMNH); the Natal Museum, Pietermaritzburg (NM); and the National Museum of Natural History, Smithsonian Institution, Washington DC (USNM).

Genus *Ankylohelea* gen. nov.Type-species: *Ankylohelea montana* sp. nov.

The name of the genus is from the Greek, *ankylos*, bent, crooked or hooked; and *heleios*, a marsh-dweller, and is feminine gender.

Small, dark brown, unornamented predaceous midges. Wings about 1.0 mm long. Eyes narrowly separated, with minute interfacetal hairs. Antenna moderately long, distal 5 segments of both sexes slightly elongated; segment 3 without sensilla coeloconica; male flagellar segments not fused, plume reduced to sparse long verticils. Palpus 5-segmented; 3rd segment with shallow, round sensory pit. Female mandible with 8 small teeth. Legs moderately slender, hind femur slightly enlarged; femora unarmed; 4th tarsomeres cordiform, 5th unarmed; female claws as in male but larger, subequal and similar on all legs, moderately strong and curved, each talon with small internal basal tooth. Wing without colour pattern; costal ratio 0.62–0.69; 2 radial cells, 1st slitlike, 2nd twice as long as 1st and moderately broad; base of media narrowly interrupted. Female abdomen moderately stout, segments 7 and 8 narrowed and strongly sclerotized, 8 forming a complete ring; spermathecae 2, oval with long slender necks. Male 9th tergum short and tapering, apicolateral processes moderately short and approximated; basistyles elongate, twice as long as 9th tergum; dististyle abruptly bent or elbowed near base, moderately stout and nearly straight on distal portion. Aedeagus more or less cone-shaped in ventral profile, basal arms short, rounded distally with a deep apical incision from which arises an internal, anterodorsally directed, slender, pointed process. Parameres separated, each with strong, laterally-directed, basal apodeme connected to base of basistyle, distal portion nearly straight, slender, directed caudad behind aedeagus, with slender distal point directed ventrad over shoulders of aedeagus.

*Ankylohelea* is the sister-group of the genus *Notoceratopogon* De Meillon & Downes (1986) in the tribe Ceratopogonini, from which it can be separated as follows:

- 1 Costal ratio 0.45–0.50; radial cells small and subequal in length, spermathecae small and globular with short necks and irregular walls; male antenna with dense plume, segments 4–12 fused, 13–15 elongated; male 9th tergum about as long as basistyles, with apicolateral processes long, slender and well separated; dististyle evenly curved and tapering to tip . . . . . *Notoceratopogon* De Meillon & Downes
- Costal ratio 0.62–0.69; 2nd radial cell twice as long as 1st; spermathecae oval with smooth contour and long slender necks; male antenna with long sparse verticils not forming a plume, segments 4–12 not fused, 11–14 only slightly elongated; male 9th tergum half as long as basistyle, with apicolateral processes short and close together; dististyle abruptly bent near base, stout and nearly straight distally . . . . . *Ankylohelea* gen. nov.

***Ankylohelea montana* sp. nov.**, Figs 1–8

In addition to the generic characters given above, the species is described as follows.

**MALE.** A small, uniformly blackish species; wing length 1.05 (0.88–1.16,  $n = 6$ ) mm; breadth 0.41 (0.38–0.45,  $n = 5$ ) mm.

**Head.** Black. Eyes narrowly separated by width of 1–2 ommatidial facets. Antenna (Fig. 1) with torus black, flagellar segments paler, not fused; segment 4 subglobular, 5–6 slightly longer than wide, 7–10 gradually becoming more vasiform

with 10 markedly so; 11-14 only slightly elongated and without the long, strong verticils seen on 3-10; lengths of flagellar segments in proportion of 32-20-22-22-22-23-26-29-30-31-31-46; antennal ratio 0.94. Palpus (Fig. 3) long; segment 3 extending to near tip of proboscis, slightly swollen and with a marked but shallow sensory pit near inner apex; lengths of segments 2-5 in proportion of 15-20-13-20.

Thorax. Uniformly very dark brown to black, scutum with a few long black bristles above wing root, otherwise with scattered, short, stiff bristles, without anterior tubercle. Scutellum with 6 bristles and some smaller hairlike setae; pleuron bare; propisternum with 2 bristles. Legs with femur and tibia dark brown on hind leg, paler on mid and fore legs, all tarsi paler; hind tibial comb with 7 long spines, apical spur about as long as width of tibial apex; fore tibia with spur as on hind leg; hind basitarsus slightly arcuate, with 1 row of palisade setae, a small strong black spine at base and another somewhat smaller at apex; mid basitarsus with similar spines but smaller and still smaller ones in-between; fore basitarsus as on mid leg but no spines between base and apex; rest of tarsi without any short spines; 4th tarsomeres without whiplike hyaline sensory hair characteristic of *Kolenohalea*; 5th tarsomeres at least as long as 3 and 4 combined; claws small, equal, each apparently with a small, internal, basal tooth. Wing veins well marked, costal ratio 0.63 (0.62-0.64,  $n = 6$ ); media petiolate, base of vein M<sub>2</sub> interrupted (Fig. 2); microtrichia minute and very dense, a few macrotrichia just inside distal margin; alula fringed. Haltere pale brownish.

Abdomen. Dark brown to black, especially distally. Genitalia (Figs 5-7) strongly sclerotized; dististyles strongly curved inwards, this together with the long basistyles and the very short 9th tergum appear to be characteristic; apicolateral processes short and strong, each with a shallow cavity apically in which is situated a small, very fine seta; cerci small; dististyles have scattered on the surface some small sockets each bearing a short minute seta. Aedeagus (Fig. 7) triangular with deep V-shaped incision apically (in which appears the apex of a posterior process best seen in side view (Fig. 8) drawn from a specimen dissected out completely). Parameres (Fig. 5) separate, of a type commonly seen but the reflexed apical part rather narrow.

**FEMALE.** Colour and eyes as in male; wing length 1.04 (0.99-1.12,  $n = 6$ ) mm; breadth 0.47 (0.44-0.50,  $n = 5$ ) mm.

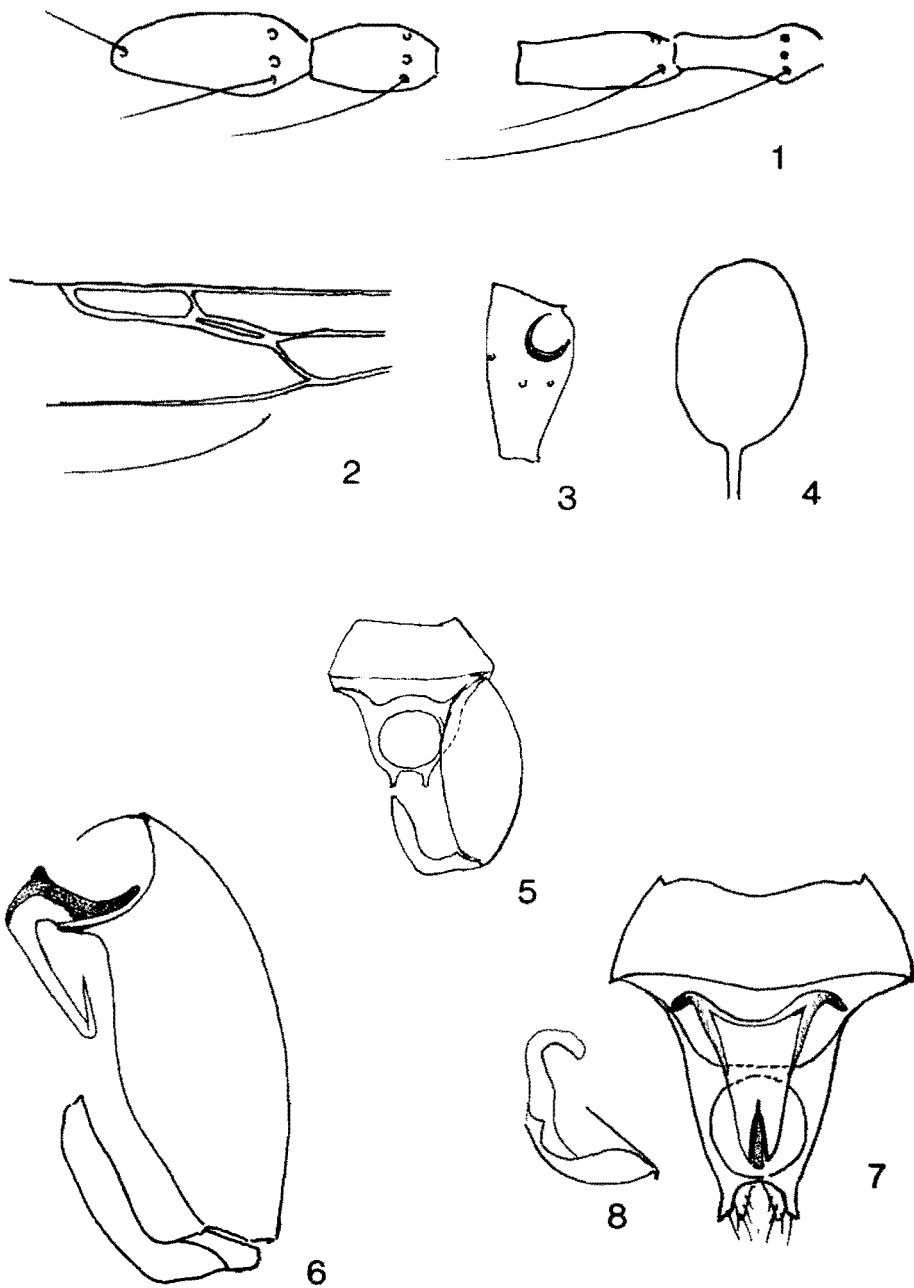
Head. Antenna with torus black, flagellum dark brown, with short stiff verticils; segments 4-10 slightly barrel-shaped, subequal in length but narrowing to 10 which is about twice as long as wide; 11-14 subequal with 15 a trifle longer as in male (Fig. 1) and bearing a subapical bristle. Lengths of flagellar segments in proportion of 27-20-20-20-21-21-21-22-30-30-30-30-34; antennal ratio 0.90. Palpus with lengths of segments in proportion of 10-25-34-20-35; palpal ratio 2.0.

Thorax. As in male. Legs as in male but claws, especially in hind leg, longer and each talon definitely with an internal basal tooth. Wing as in male but with a few more macrotrichia apically. Costal ratio 0.67 (0.63-0.69,  $n = 6$ ).

Abdomen. Colour as in male. Spermathecae dark brown to black, measuring 0.057 (+ neck 0.021) by 0.042 mm and 0.052 (+ neck 0.018) by 0.036 mm (Fig. 4).

Distribution. Transvaal.

**MATERIAL EXAMINED.** Holotype ♂: SOUTH AFRICA: Transvaal, Die Tuine, Tzaneen, 22.xi.1983, M. Coetzee, UV light trap (SAIMR). Paratypes 4 ♂, 6 ♀, same data but collected 8.xi.1982, 18.xi.1983 and 22.xi.1983 (BMNH, NM & USNM).



Genus *Capehelea* gen. nov.Type-species: *Capehelea steli* sp. nov.

The genus derives its name from an area in the Cape Province of South Africa usually referred to as "The Cape". The fauna is little known and it is not surprising that a genus presenting a new combination of features should be found.

Medium-sized, uniformly brownish predaceous midges, wing 1.40 mm long. Eyes closely approximated, bare. Antenna moderately long, 5 distal segments moderately elongated; sensilla coeloconica absent on segment 3, present on segments 11–14; male antenna with dense plume, segments 3–11 fused, 13–14 elongated. Palpus 5-segmented; 3rd segment slightly expanded apically with small deep sensory pit. Mandible with 10 small teeth. Legs moderately slender; femora not enlarged, unarmed; 4th tarsomeres cordiform, bearing a pair of downcurved hyaline sensilla; 5th tarsomeres unarmed; female claws consisting of a single long talon with a slender basal tooth half as long. Wing (Fig. 9) slightly infuscated, without pattern; a few macrotrichia on distal half; costal ratio 0.59; 2 radial cells, both complete and subequal in length, 2nd broader; media interrupted a short distance at base. Female abdomen moderately stout, distal segments not strongly sclerotized; spermathecae 2, strongly sclerotized with irregular surface and a pedestal-like ring at base, neck short and slender. Male genitalia well sclerotized; 9th sternum rather elongate with distinct median suture-like line; 9th tergum as long as basistyles, tapering to narrow apex with prominent apicolateral processes and a pair of submedian setose papillae; basistyle moderately swollen, dististyle long and curved, and moderately broad to distal point. Aedeagus Y-shaped, about as wide at base as total length, basal arch to half of total length; distal process slender and lightly sclerotized. Parameres separate; basal arm winglike; distal process nearly straight, the pair closely approximated, slightly enlarged to rounded tip bearing a sharp spurlike ventromesal projection.

The new genus is related to *Stilobezzia* Kieffer and *Kolenohalea* De Meillon & Wirth and appears to be a connecting link between the two. It can be identified by the following key:

- 1 First radial cell rhomboidal; hind basitarsus without a strong black spine basally; hind femur not enlarged; apicolateral processes of 9th tergum normal, small . . . . . *Stilobezzia* Kieffer
- First radial cell slit-like; hind basitarsus with a short, strong, black spine basally; hind femur enlarged or not; male apicolateral processes various . . . . . 2
- 2 Hind femur enlarged; antenna without sensilla coeloconica; 3rd palpal segment with shallow sensory pit; 4th tarsomere with whip-like hyaline sensilla; costal ratio 0.60 or greater; spermathecae normal; apicolateral processes of 9th tergum greatly enlarged . . . . . *Kolenohalea* De Meillon & Wirth
- Hind femur not enlarged, or if so only slightly; antenna with sensilla coeloconica present on segments 11–14 of female, 14 of male; 3rd palpal segment with deep sensory pit; 4th tarsomere of fore leg with curved hyaline sensilla, not whip-like; spermathecae with wrinkled surface and cup-like strong proximal sclerotization (Fig. 14); costal ratio less than 0.60; apicolateral processes of 9th tergum normal, small . . . . . *Capehelea* gen. nov.

Figs 1–8. *Ankylohelea montana*. 1. Male antenna, segments 10–11, 14–15. 2. Male wing, detail of radial cells. 3. Male 3rd palpal segment. 4. Female spermatheca. 5. Male 9th segment. 6. Male basistyle, dististyle and paramere. 7. Male 9th sternum, tergum and aedeagus. 8. Male aedeagus, side view.

***Capehelea steli* sp. nov., Figs 9–19.**

In addition to the generic characters given above, the species is described as follows.

**FEMALE.** A medium sized species without any distinctive markings anywhere.

**Head.** Brown. Antenna (Fig. 10) with lengths of flagellar segments in proportion of 18–10–10–9–9–10–10–10–20–20–20–26; antennal ratio 1,24; small sensilla coeloconica present on segments 11–14; 1st antennal segment almost completely surrounded by a row of long setae; torus black with a few smaller setae; 3rd segment with very short stalk in a shallow depression of the torus; 4–10 gradually decreasing in width, 10 being nearly twice as long as wide, 11–15 elongated. Palpus (Fig. 11) lengths of segments in proportion of 10–14–20–9–14; palpal ratio 2,20; 3rd segment bears a narrow but deep sensory pit at inner apex. Mandible sharply pointed, bearing about 10 small strong triangular teeth.

**Thorax.** Uniformly brown; scutellum with 8 strong bristles and a few smaller setae; mesonotum without anterior tubercle; proepisternum with 3 long setae. Wing uniformly pale brownish, slightly darker along veins (Fig. 9); macrotrichia on distal half and a few proximad; media petiolate with base of M<sub>2</sub> interrupted; 1st radial cell open but narrow, second not much longer than 1st but slightly broader; costa and veins without any strong setae; alula fringed. Haltere whitish. Legs light brown, narrow knee spots pale; hind tibia with apical comb of 7 strong colourless spines and a short, very strong, slightly curved, fimbriated spur. Hind basitarsus slightly curved with a typical anteroventral row of palisade setae, a conspicuous short black spine near base and a smaller one apically; fore tibia with broad, blade-like apical spur as long or longer than width of tibial apex; tarsomeres 2–3 on hindleg and 1–3 on mid and fore legs with 2–3 short, pale and inconspicuous spines (Fig. 12); 4th tarsomeres definitely cordiform (Figs 12–13), bearing a long, down-curved, hyaline sensillum apically on each lobe.

**Abdomen.** A shade paler than thorax, apical segments not strongly sclerotized. Spermathecae 2 functional and 1 rudimentary; functional spermathecae (Fig. 14) of similar shape and structure; large and of unusual shape, with a strong ring-like sclerotization near the short slender neck; slightly unequal, measuring including neck 0,088 by 0,047 mm and 0,083 by 0,042 mm.

**MALE.** Resembling the female in all respects except sexual differences which are described below.

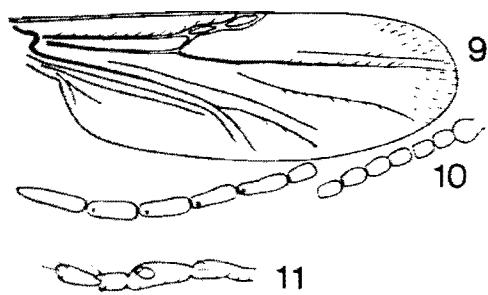
**Head.** Lengths of antennal flagellar segments in proportion of 28–11–10–10–10–10–10–10–12–18–33–30–31; antennal ratio 0,99.

**Thorax.** Wing with fewer macrotrichia than in female, slightly brownish hyaline; costal ratio 0,58. Legs with claws small and equal, simple and slightly curved with sharp tips; hind tibial comb with 6 spines.

**Abdomen. Genitalia** (Figs 15–19). Aedeagus (Fig. 18) partly transparent and tip difficult to define. Ninth sternum relatively broad, with a suture-like line medially, distal margin straight or nearly so; 9th tergum (Fig. 15) elongate. Basistyle about twice

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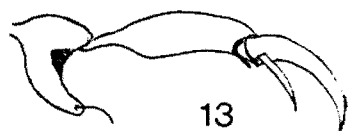
Figs 9–19. *Capehelea steli*. 9. Male wing. 10. Female antenna. 11. Female palpus. 12. Female tarsomeres 3 and 4 of mid leg. 13. Tarsomeres 4 and 5 and claws of female fore leg. 14. Female spermatheca. 15. Male 9th tergum. 16. Male dististyle. 17. Male aedeagus and parameres (paratype). 18. Male aedeagus. 19. Male parameres.



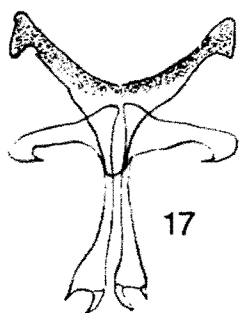
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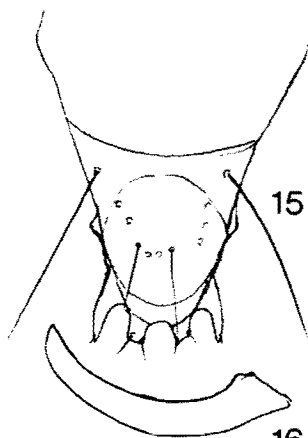
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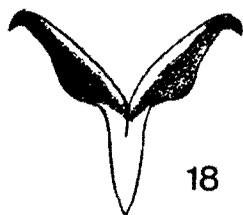


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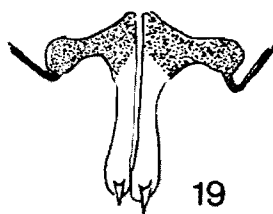


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as long as broad with short mesal longitudinal fold which appears to be connected with basal apodeme of parameres; dististyle (Fig. 16) curved, of even width throughout and ending in a small beak. Aedeagus (Figs 17–18) as figured, with basal arms partly sclerotized and the rest transparent. Parameres (Figs 17, 19) consisting of a pair of straight, moderately long processes slightly enlarged apically with rounded tip dorsad and a sharp spurlike distal projection on ventromesal apex; base of paramere broad and wing-like, connected to its respective apodeme.

Distribution. Cape Province, South Africa.

**MATERIAL EXAMINED.** Holotype ♀: SOUTH AFRICA: Cape Province, Jonkershoek, Stellenbosch, 20.iv.1986, J. Giliomee (SAIMR). Paratypes 2 ♂, same data but collected 18.ix.1982, 20.iv.1986 (USNM).

**Discussion.** The species is named for Simon van der Stel, in whose honour the town Stellenbosch was named, and also Stellenbosch University where the collector Prof. Giliomee is head of the Department of Entomology.

The paratype male differs from the allotype in possession of a short black sub-basal spine on the hind basitarsus in addition to the basal and apical ones, and the parameres appear slightly longer and more slender (probably due to the aspect as seen on the slide mount) (Fig. 17).

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